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The Photon: From Newton and Maxwell to Einstein and Schwinger

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The photon concept has a strange history. From the beginning there has been debate whether light is particle-like as Newton suggested or wave-like as Young showed. This debate continued up to modern times and was in particular illuminated by Einsteins discussion the fluctuations and entropy of electromagnetic radiation. Based on thermodynamic reasoning he came to the conclusion that light has both a particle and a wave side. In the mid 20s quantum mechanics in the Heisenberg-Schrdinger form came into being and the first papers on quantum electrodynamics. Simultaneously, the electron was being investigated both from the point of view of quantum field theory and the Schrdinger wave equation and it was shown that the Schrdinger equation is in a real sense the wave rendition of the quantum field theoretic description. One then naturally asks "whether it is possible to consider the Maxwell equations to be a kind of Schrdinger equation for light particles?" The answer is "yes".